

Sub 3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

a second step of removing silicon nitride formed in said reaction container, with NF_3 gas flowing into said reaction container.

2. A semiconductor device manufacturing method as recited in Claim 1, further comprising said first step after said second step.

3. A semiconductor device manufacturing method as recited in Claim 1, wherein

after repeating said first step predetermined times, said silicon nitride formed in said reaction container is removed, with NF_3 gas flowing into said reaction container.

Sub A7

before said silicon nitride formed in said reaction container has a predetermined thickness, said silicon nitride formed in said reaction container is removed, with NF_3 gas flowing into said reaction container.

5. A semiconductor device manufacturing method as recited in Claim 1, wherein

before said silicon nitride formed in said reaction container has such a thickness as to generate particles on said object, said silicon nitride formed in said reaction container is removed, with NF_3 gas flowing into said reaction container.

6. A semiconductor device manufacturing method as recited in claim 1, wherein

said reaction container itself is made of quartz and/or a member made of quartz is used in said reaction container, and

before a thickness of said silicon nitride formed on said quartz is increased to such an extent as to generate particles on said object, NF_3 gas is allowed to flow into said reaction container to remove said silicon nitride formed on said quartz.

7. A semiconductor device manufacturing method as recited in claim 6, wherein

said second step is carried out in a state where a pressure in said reaction container is set to 10 Torr or higher.

8. A semiconductor device manufacturing method as recited in claim 1, further comprising a step of purging said reaction container using NH_3 gas at least one of before and after said first step.

9. A semiconductor manufacturing apparatus comprising a reaction container, wherein

a silicon nitride film is formed, by a thermal chemical vapor deposition method, on an object disposed in said reaction container, with bis tertiary butyl amino silane and NH_3 flowing into the reaction container, and

silicon nitride formed in said reaction container is removed, with NF_3 gas flowing into said reaction container.

Add A3
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